

Notice of Allowability	Application No.	Applicant(s)	
	09/902,483	CABRAL ET AL.	
	Examiner	Art Unit	
	Erik Kielin	2813	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the Terminal Disclaimers filed 8/25/2004 and 9/17/2004.
2. ☒ The allowed claim(s) is/are 1-8, 10-13 and 23-38.
3. ☒ The drawings filed on 02 January 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. <input type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date <u>3/8/2004</u> 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____. |
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DETAILED ACTION

Terminal Disclaimer

1. The terminal disclaimer filed on 17 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 10/287,476 has been reviewed and is accepted. The terminal disclaimer has been recorded.
2. The terminal disclaimer filed on 17 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 10/299,688 has been reviewed and is accepted. The terminal disclaimer has been recorded.
3. The terminal disclaimer filed on 17 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on Application Number 09/569,306 has been reviewed and is accepted. The terminal disclaimer has been recorded.
4. The terminal disclaimer filed on 17 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent Number US 6,503,833 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.
5. The terminal disclaimer filed on 17 September 2004 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of Patent Number US 6,444,578 B1 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

6. Claims 1-8, 10-13, and 23-38 are allowed.

The following is an examiner's statement of reasons for allowance: In addition to the filing of the terminal disclaimers as noted above, the following reasons are repeated from the Office Action filed 5/25/2004.

The rejection of the claims over Maa in view of Cabral is withdrawn. While Maa teaches each of the features of the claimed invention except for depositing, *inter alia*, metals, "alloyed combinations of suitable silicidation materials" (Maa, col. 5, first full sentence) containing silicon, Examiner is of the opinion that the use of specifically a metal containing silicon would be, at best, obvious to try, for reasons indicated by Applicant on pp. 15 to 23 of the Response filed 13 May 2004. One particular reason is that, in the Cabral reference, the metal containing silicon (titanium and silicon) is used to avoid plural annealing steps. Maa carries out plural annealing steps, which contradicts at least one reason for using the metal containing silicon (titanium and silicon) in Cabral.

Nonetheless, Examiner expressly disagrees with Applicant in regard to the following. Applicant argues, yet again, that Maa does not teach a metal alloy. Applicant blatantly and intentionally ignores the facts of record in spite of the numerous times that this fact has been pointed out to Applicant. **Maa expressly indicates that a METAL ALLOY is deposited on the substrate, in the paragraph bridging cols. 4 to 5 --specifically at col. 5, first whole sentence, stating,**

"Referring to FIG. 4, following the formation of gate structure 30 and the ion implantation steps creating source and drain electrode regions 46, 48, a layer of silicidation material 80 is deposited on substrate 10. Silicidation material thus covers the single-crystal silicon of source/drain

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electrodes 46, 48. Suitable materials for use in siliciding semiconductor electrodes include refractory metals and noble metals. Examples of the silicidation material includes Co, Ti, Ni, W, Pt, Pd, Mo, and Ta. Layer 80 preferably has a thickness generally in the range of 50 Å to 300 Å. Layer 80 is either a uniform layer of a single metal, for example cobalt, or, alternatively, is made up of more than one layer of silicidation material. For example, layer 80 might include a lower layer of Ti, and an upper layer of Co. Other layered or **alloyed** combinations of suitable silicidation materials for use in creating silicide contacts on semiconductor electrodes will occur to those skilled in the art."

Accordingly, Applicant's *ad naseum* insistence that Maa does not teach depositing a metal alloy is wholly without merit. It is also noted with interest, that **yet again**, Applicant, in the section entitled "III. The Prior Art Rejections" on p. 13, of the paper filed 13 May 2004, quotes the above excerpt from Maa **up to the last sentence** of the above paragraph, **ignoring** that Maa states the word "alloyed combinations." Examiner is perplexed at Applicant's continued insistence that metal alloys and other "alloyed combinations" are not disclosed in Maa, in spite of the **numerous** times which Examiner has pointed out this feature in Maa.

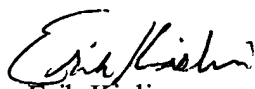
Moreover, Applicant has narrowed the claims in attempts to overcome the prior art. Originally Applicant claimed a metal and a metal alloy. The limitation, "metal containing silicon," was not added until the provision of prior art anticipating the claims. Applicant's numerous amendments to the claims makes claim that the claims have been narrowed with respect to the material being deposited to form the silicide layer. Accordingly, the instant claims are **not** entitled to the doctrine of equivalents with respect to metal and metal alloy materials being deposited from which the silicide is made, in accordance with precedent.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik Kielin whose telephone number is 571-272-1693. The examiner can normally be reached on 9:00 - 19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr. can be reached on 571-272-1702. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Erik Kielin
Primary Examiner
8 October 2004